



## ORIGINAL ARTICLE

# A theory of planned behavior-enhanced intervention to promote health literacy and self-care behaviors of type 2 diabetic patients

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## Keywords

Diabetes • Self-care behavior • Health literacy • Attitude • Behavior change

## Summary

**Background.** Improved health literacy and awareness could help type 2 diabetic patients to control the disease complications.

**Objective.** The current study aimed to evaluate the impact of theory-based educational intervention on health literacy and self-care behaviors of type 2 diabetic patients in Tonekabon city.

**Methods.** This randomized controlled trial study was conducted at health care centers in Tonekabon city, Iran, from April 5, 2017, to October 22, 2018. Using multistage random sampling, 166 patients with type 2 diabetes divided into two groups: theory-based intervention ( $n = 83$ ) and custom education ( $n = 83$ ). The data collection tools consisted of demographic information, Theory of Planned Behavior (TPB) measures, health literacy for Iranian adults (HELIA) and summary of diabetes self-care activities (SDSCA). The five 45-minute group training sessions based on the baseline assessment and model constructs along with the targeted

pamphlet and m-health strategy were designed for the experimental group. Data were analyzed using chi-square, independent and paired t-test and Analysis of covariance (ANCOVA).

**Results.** After controlling for pre-test effect, there was a significant difference between the two groups in terms of mean scores of attitudes, subjective norms, perceived behavior control and intention in post-test ( $P < 0.001$ ). Also, after controlling for the pre-test effect, the results showed a significant difference in the self-care domain in the post-test ( $P < 0.001$ ). Finally, after controlling for the pre-test variable effect, covariance analysis reflects significant difference in total health literacy score and its dimension at posttest ( $P < 0.001$ ).

**Conclusions.** Applying TPB based education is suggested to maintain and improve self-care behaviors and health literacy in type 2 diabetic patients and other chronic diseases.

## Background

### TYPE 2 DIABETES AND ITS CONSEQUENCES

Diabetes, a chronic metabolic disorder and one of the major public health concerns, is regarded as a global epidemic [1]. The risk factors contributing to the development of type 2 diabetes (T2D) are comprised of age 45 years and older, obesity and overweight, sedentary lifestyle, polycystic ovary syndrome, high blood pressure, impairment in lactose tolerance test, unhealthy diet and cigarette smoking [2]. Complications associated with diabetes are comprised of visual impairments, kidney dysfunction, cardiovascular disease, impaired wound healing, diabetic foot ulcers and eventually death. Moreover, the rate of diabetic patient's hospitalization is said to be nearly 4.2 times more than other chronic diseases and patients' life expectancy be five to fifteen years shorter than other people's [3].

Having numerous complications, T2D adversely affects quality of patients' lives. Besides, with regard to non-communicable and chronic nature of T2D as well as imposing heavy financial burden on families and health care system, it is essential to take serious heed of the disease outcomes [4, 5].

### PREVALENCE OF TYPE 2 DIABETES WORLDWIDE AND IN IRAN

Yearly, more than 7 million people worldwide suffer from diabetes, which would lead to nearly 3.8 million death related to it. Furthermore, every 10 seconds equates to a diabetic patient death. It is expected that the number of diabetic patients will approximately double by 2030 if no intervention is considered, developing countries to encounter with a 69% increase in diabetes prevalence [6]. In addition, estimations suggesting that 14% of Iranian population aged over 30 are diabetic, which their number will rise to 9 million by 2021 [7].

Considering the increasing trend of diabetes all around the world, World Health Organization (WHO) has regarded it as a hidden epidemic and requested all countries to deal with it. Therefore, given the lack of a certain cure for diabetes, what could play a key role in preventing its sever complications is to concentrate on appropriate cares such as regular blood sugar control and maintaining it in an optimum level [8].

### SELF-CARE AND ITS ROLE IN DIABETES CONTROL

Studies have shown that maintaining blood glucose level in a normal range may cause eye and renal complications to delay by 8 and 6 years, respectively. There is no